

## PATENT ABSTRACTS OF JAPAN

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### (54) INFORMATION RECORDING CARD

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an information recording card, with which abandonment processing is facilitated and the problem of environment pollution is not generated at the time of abandonment processing, by making a card substrate composed of low crystalline thermoplastic resin sheet or double coated non-crystalline sheet having the crystallization lower than a specified value.

SOLUTION: A non-crystalline resin such as polycarbonate resin is used as a low crystalline thermoplastic resin sheet having the crystallization lower than 5% to be used for the card substrate or protecting sheet of the card. In place of these non-crystalline resins, the double coated non-crystalline sheet prepared from non-crystalline resins and crystalline resins prepared through a co-extruding is used. Such a white non-crystalline PETG sheet 2 is obtained with a card support 3 as a sheet whose both sides are sandwiched between transparent non-crystalline PETG sheets 1. The rear surface of the provided sheet is coated with adhesive painting so that a plastic thermosensitive recording tape 4 is obtained. By using low crystalline resins, this information recording card having high practical use is free of the problem of hydrogen chloride and dioxin since they are not generated when burned after use.

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## CLAIMS

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[Claim(s)]

[Claim 1] The information record card characterized by being the card which prepared the reversibility thermal recording section which has a reversibility heat-sensitive recording layer in the card base material which carried out the laminating of the protection sheet in both sides of a card base material, and a card base material being the thermoplastics sheet of low crystallinity of 5% or less of degree of crystallinity, or the double-sided amorphous sheet with which it was made by co-extrusion with a non-crystalline polymer and crystalline polymer.

[Claim 2] The information record card according to claim 1 characterized by both protection both [ one side or ] which carried out the laminating to both sides of the above-mentioned card base material being the thermoplastics sheet of low crystallinity of 5% or less of degree of crystallinity, or a double-sided amorphous sheet made by co-extrusion with a non-crystalline polymer and crystalline polymer.

[Claim 3] The information record card according to claim 1 or 2 characterized by establishing the magnetic-recording section or IC Records Department in the above-mentioned card base material.

[Claim 4] The information record card of claim 1-3 to which nebula and transparency are characterized by being the thing of the macromolecule / low-molecular type which changes reversibly according to the crystallized state low-molecular [ organic ] by which the above-mentioned reversibility heat-sensitive recording layer was distributed in the resin base material given in any 1 term.

[Claim 5] The information record card of claim 1-3 characterized by being the thing of the leuco compound type whose above-mentioned reversibility heat-sensitive recording layers are the leuco compound distributed by the resin base material and a heat color-enhancing constituent using the reversible coloring reaction by the developing/reducing reagent given in any 1 term.

[Claim 6] The information record card of claim 1-5 given in any 1 term with which the

above-mentioned thermoplastics sheet is characterized by being a copolymer with a terephthalic acid, cyclohexane dimethanol, and ethylene glycol, or the alloy of the copolymer and polycarbonate.

[Claim 7] The information record card of claim 1-5 given in any 1 term with which the above-mentioned thermoplastics sheet is characterized by being a terephthalic acid, isophthalic acid, and a copolymer with ethylene glycol.

[Claim 8] claims 1-5 characterized by the above-mentioned thermoplastics sheet consisting of the simple substance or mixture of amorphous thermoplastics, such as polyester resin, ABS plastics, an AS resin, polystyrene, the poly acrylic nitril, polymethylacrylate, polymethylmethacrylate, vinyl acetate, polyvinyl alcohol, and a polycarbonate, -- an information record card any or given in 1 term.

[Claim 9] sheet \*\*\*\* by which the above-mentioned double-sided amorphous sheet was made from co-extrusion low crystalline [ PET ] and crystalline [ PET ] -- claims 1-5 characterized by things -- an information record card any or given in 1 term.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the information record card having the recording information by magnetic data or electronic data, and its visible information in more detail about the information record card which is used for an ATM card, a credit card, an ID card (identification card), a membership card, a prepaid card, etc. and which has an information record medium.

[0002]

[Description of the Prior Art] Before, information record cards, such as a member card, an ID card, a credit card, an ATM card, and an IC card, prepare the magnetic tape in which magnetic recording is possible, a magnetic-recording layer, or IC chip in some cards, and are recording information with digital one or an analog signal.

[0003] These cards need to perform reading processing of recording information with the reader of dedication, when displaying or checking the content of information record, and there is no means which a general user checks. For example, although a premium, the point, etc. may be formed to a member, it is necessary to go to the store which arranges the reader with the user only for cards, or to introduce to a user with an invitation etc. independently with a member card, in digital one to a card, or the case of only record by the analog signal. Then, in order for the demand to displaying in simple that such a content of information record be visible to people's eyes to increase and to satisfy this demand in recent years, an organic low-molecular one be distribute in a resin binder, and the reversible display technique of the macromolecule / low-molecular type which display by the contrast of nebula and transparence be develop. There is also a reversible display medium using what the giant molecule / low-molecular type reversible display medium consists of [ what ] the plastic sheet / a coloring layer / a reversibility thermal recording (giant-molecule/low-molecular) layer / a protective layer, and distributed the leuco compound and the \*\*\*\* coloring material in giant-molecule resin as a reversibility

heat-sensitive recording layer apart from it. These reversible display media are printed by the thermal head, and function as the reversibility thermal recording section which can eliminate the printing by the thermal head.

[0004] By the way, in the field of these ATM cards, a credit card, an ID card, etc., etc., the magnetic-recording medium is used widely, polyvinyl chloride (PVC) resin and a vinyl chloride vinyl acetate copolymer are mainly used as a raw material of these cards, and, generally especially polyvinyl chloride resin is used. Polyvinyl chloride resin is excellent in a physical property, a mechanical property, the embossing fitness of the alphabetic character section, etc., and current is widely used as optimal raw material which is perfect as a raw material of a card.

[0005] The general manufacture approach of an information record card with a magnetic-recording medium is performed by the following procedures. After using a white polyvinyl chloride (PVC) sheet as a card base material first, printing by the well-known printing approach, such as offset printing, gravure, and screen-stencil, to the card base material, carrying out the laminating of the PVC sheet with transparency high as a protection sheet to the both sides and creating a card base material, imprint a magnetic tape to the card base material, and it is made to unify by thermal melting arrival with a hot press machine, it pierces with the metal mold of predetermined size, and is made the shape of a card type. Although the hot printing type magnetic tape loomed from the card face after the imprint and has produced the level difference, it is embedded at the time of the thermal melting arrival in a hot press machine, and becomes flat-tapped with a card face. Float alphabetic character processing is carried out and, usually a user is presented [ to which information is recorded on a card by the magnetic tape after that, and it is called an embossed character ].

[0006] However, while physical properties, workability, and profitability are excellent, polyvinyl chloride resin In case you discard after an activity, especially, the hydrogen chloride gas at the time of incineration is generated, an incinerator is damaged, and the life of the furnace itself be shrunk enough. There is a problem that relevance with the dioxin which is making noise as one of the environmental hormone is suspected. Germany, Northern Europe, etc. are begun on these problems, the motion of dePVC is becoming active in each country, and it is becoming the same flow which uses resin other than a vinyl chloride in the building-materials field, the industrial materials field, and the packing-material field also at home.

[0007]

[Problem(s) to be Solved by the Invention] Let it be a technical problem for this invention to offer the information record card which the problem of environmental pollution does not generate at the time of abolition processing that it was made paying attention to the above problems, the reversibility thermal recording section which has a reversibility heat-sensitive recording layer in the card base material which carried out the laminating of the protection sheet to both sides of a card base material is prepared, and it is moreover easy to carry out abolition processing.

[0008]

[Means for Solving the Problem] In order to attain the above-mentioned technical problem in this invention, first in invention of claim 1 It is the card which prepared the reversibility thermal recording section which has a reversibility heat-sensitive recording layer in the card base material which carried out the laminating of the protection sheet in

both sides of a card base material. A card base material considers as the information record card characterized by being the thermoplastics sheet of low crystallinity of 5% or less of degree of crystallinity, or the double-sided amorphous sheet made by co-extrusion with a non-crystalline polymer and crystalline polymer.

[0009] Moreover, in invention of claim 2, both protection both [ one side or ] which carried out the laminating to both sides of the above-mentioned card base material consider as the information record card according to claim 1 characterized by being the thermoplastics sheet of low crystallinity of 5% or less of degree of crystallinity, or the double-sided amorphous sheet made by co-extrusion with a non-crystalline polymer and crystalline polymer.

[0010] Moreover, in invention of claim 3, it considers as the information record card according to claim 1 or 2 characterized by establishing the magnetic-recording section or IC Records Department in the above-mentioned card base material.

[0011] Moreover, in invention of claim 4, the above-mentioned reversibility heat-sensitive recording layer considers as the information record card of claim 1-3 characterized by nebula and transparency being the things of the macromolecule / low-molecular type which changes reversibly given in any 1 term according to the crystallized state low-molecular [ organic ] distributed in the resin base material.

[0012] Moreover, in invention of claim 5, the above-mentioned reversibility heat-sensitive recording layer considers as the information record card of claim 1-3 characterized by being the thing of the leuco compound type which are the leuco compound distributed by the resin base material and a heat color-enhancing constituent using the reversible coloring reaction by the developing/reducing reagent given in any 1 term.

[0013] Moreover, in invention of claim 6, the above-mentioned thermoplastics sheet considers as the information record card of claim 1-5 characterized by being a copolymer with a terephthalic acid, cyclohexane dimethanol, and ethylene glycol, or the alloy of the copolymer and polycarbonate given in any 1 term.

[0014] Moreover, in invention of claim 7, the above-mentioned thermoplastics sheet considers as the information record card of claim 1-5 characterized by being a terephthalic acid, isophthalic acid, and a copolymer with ethylene glycol given in any 1 term.

[0015] moreover, claims 1-5 characterized by the above-mentioned thermoplastics sheet consisting of the simple substance or mixture of amorphous thermoplastics, such as polyester resin, ABS plastics, an AS resin, polystyrene, the poly acrylic nitril, polymethylacrylate, polymethylmethacrylate, vinyl acetate, polyvinyl alcohol, and a polycarbonate, in invention of claim 8 -- it considers as an information record card any or given in 1 term.

[0016] moreover, sheet \*\*\*\* by which the above-mentioned double-sided amorphous sheet was made from invention of claim 9 by co-extrusion low crystalline [ PET ] and crystalline [ PET ] -- claims 1-5 characterized by things -- an information record card any or given in 1 term. It carries out.

[0017]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to a detail. As a thermoplastics sheet of low crystallinity of 5% or less of degree of crystallinity used for the card base material or protection sheet of this invention

card A terephthalic acid, cyclohexane dimethanol, and a copolymer with ethylene glycol, Or the alloy of the copolymer and polycarbonate, and a terephthalic acid, isophthalic acid and a copolymer with ethylene glycol, Acrylic nitril-Butadiene Styrene resin, polystyrene resin, Simple substances or such mixture of a non-crystalline polymer, such as the poly acrylic nitrile resin, polyvinyl alcohol resin, polymethylacrylate resin, polymethylmethacrylate resin, vinyl acetate resin, and polycarbonate resin, etc. can be used. Moreover, the double-sided amorphous sheet made by the coextrusion process in a non-crystalline polymer and crystalline polymer instead of these non-crystalline polymers can be used.

[0018] Furthermore, to these low crystallinity polyester resin and other resin, as long as it is 15% or less preferably 50% or less in a weight ratio, matter, such as various additives and a polymer, may be added.

[0019] By change of the crystallized state of the organic low-molecular matter distributed by the resin base material (matrix), nebula and transparence can choose any of the leuco compound type which is a heat color-enhancing constituent using the reversible coloring reaction between the macromolecule / low-molecular type which changes reversibly, and the electron-donative coloration nature compound and electronic receptiveness compound distributed by the resin base material they are, and can use a heat-sensitive recording layer. A heat-sensitive recording layer can be established in 4 micrometers - about 20 micrometers of thickness with print processes, a coating method, etc. As organic low-molecular matter distributed in a macromolecule / low-molecular type thermosensitive recording layer, a fatty acid, a fatty-acid derivative, or an alicyclic organic acid is mentioned. In more detail The thing of saturation or partial saturation or dicarboxylic acid, a myristic acid, a pentadecane acid, A palmityl acid, a heptadecanoic acid, stearin acid, a nano decanoic acid, arachin acid, Behenic acid, a lignoceric acid, a cerotic acid, a montanoic acid, a melissic acid, etc. are mentioned, and oleic acid, an elaidic acid, linolic acid, a sorbic acid, a steer roll acid, etc. are mentioned as an example of unsaturated fatty acid. In addition, it is also possible for a fatty acid, a fatty-acid derivative, or an alicyclic organic acid not to be limited to things, such as this, and to mix 1 of kinds of this and two kinds or more, and to apply. Moreover, as a resin base material used, the independence of acrylic resin, urethane system resin, polyester system resin, cellulose acetate system resin, nitrocellulose system resin, vinyl chloride system resin, and vinyl acetate system resin, mixing, or a copolymerization object is used. On the other hand, since the rarefaction temperature requirement of the reversibility thermal recording section is controlled, weight section addition of the plasticizer of resin, the retarder thinner, etc. can be carried out from 0.1% 20% to a resin base material. Furthermore, since the repeat printing elimination resistance of the reversibility thermal recording section is improved, weight section addition of the curing agent corresponding to a resin base material which carries out three-dimensions bridge formation, the bridge formation material, etc. can be carried out from 0.5% 10% to a resin base material.

[0020] Leuco compound types are the leuco compound distributed in the resin base material (matrix), and a heat color-enhancing constituent using the reversible coloring reaction of a \*\*\*\* coloring material, and can be formed in 4 micrometers - about 20 micrometers of thickness with print processes, a coating method, etc. It is represented by the thing which is used into a thermosensitive recording layer and which is generally usually used for pressure sensitive paper, a thermographic recording paper, the

sensitization recording paper, an energization thermographic recording paper, thermal-ink-transfer-printing paper, etc. as a leuco compound of colorlessness thru/or light color, and although the xanthene which has partial frames, such as lactone, an ape ton, and a SUPIRO pyran, a SUPIRO pyran, lactone, fluoran, an ape ton system, etc. are used, it is not restricted especially. As an example, 3 and 3-bis(p-dimethylamino phenyl)-6-dimethylamino phthalide, 3 and 3-bis(p-dimethylamino phenyl) phthalide, 3, and 3-bis(1, 2-dimethyl Indore-3-IRU)-6-dimethylamino phthalide, 3-dimethylamino-6-chloro-7-methyl fluoran, 3, and 3-bis(9-ethyl carbazole-3-IRU -5)-dimethylamino phthalide, 3-dimethylamino-7-dibenzylamino fluoran, 3-diethylamino-7-chlorofluoran, 3-diethylamino-6-methyl-7-anilino fluoran, 3-piperidino-6-methyl-7-anilino fluoran, 3-(n-ethyl-n-nitril) amino-6-methyl-7-anilino fluoran, 3-dibutylamino-6-methyl-7-anilino fluoran, 3-(n-ethyl-n-tetrahydro furil) amino-6-methyl-7-anilino fluoran, etc. are mentioned, and independent -- or it is mixed and used.

[0021] On the other hand, a \*\*\*\* coloring material is a compound with which emit a proton reversibly according to an operation of heat energy, and it has a compound and a development operation and a \*\*\*\* operation to a leuco compound. That is, it has the both sides of the acidic group which consists of a phenolic hydroxyl group or a carboxyl group, and the basic group which consists of the amino group, it becomes acidity or basicity by the difference in heat energy, and the above-mentioned leuco compound is colored and decolorized. The basic group may exist as a functional group and may exist as some compounds. Moreover, the \*\*\*\* coloring material which has the acidic group of a \*\*\*\* coloring material or one functional group of the basic groups For example, an aminobenzoic acid, o-amino benzoic acid, a 4-amino-3-methyl benzoic acid, A 3-amino-4-methyl benzoic acid, a 2-amino-5-ethyl benzoic acid, A 3-amino-4-butyl benzoic acid, a 4-amino-3-methoxy benzoic acid, A 3-amino-4-ethoxy benzoic acid, a 2-amino-5-chloro benzoic acid, A 4-amino-3-BUOMO benzoic acid, a 2-amino-2-nitro benzoic acid, A 4-amino-3-nitro benzoic acid, a 3-amino-4-nitril benzoic acid, There are aminosalicylic acid, a diamino benzoic acid, a 2-methyl-5-amino naphthoic acid, a 3-ethyl-4-amino naphthoic acid, a nicotinic acid, an isonicotinic acid, a 2-methyl nicotinic acid, a 6-chloro nicotinic acid, etc. Moreover, it is the salt or complex salt of the compound which has a phenolic hydroxyl group or a carboxyl group, and the compound which has an amino group, for example, the salt or complex salt of acids, such as hydroxybenzoic acids, hydroxy salicylic acids, gallic acids, and a bisphenol acetic acid, and bases, such as fatty amines, phenyl alkylamines, and triaryl alkylamines, is mentioned to what has a basic group as some salt compounds. as this example, a para-hydroxybenzoic-acid-alkylamine salt, a para-hydroxybenzoic-acid-phenyl alkylamine salt, an m-hydroxybenzoic-acid-alkylamine salt, a methyl-p-hydroxybenzoate-alkylamine salt, a para-hydroxybenzoic-acid stearyl-alkylamine salt, bisphenol acetic-acid-alkylamine, a bisphenol acetic-acid octyl-alkylamine salt, etc. are mentioned, and independent -- or it is mixed and used. In addition, it is also possible for a leuco compound and a \*\*\*\* coloring material not to be limited to these things, and to mix 1 of kinds of these and two kinds or more, and to apply. Moreover, as a resin base material used, the independence of resin, such as acrylic resin, polyester system resin, polyurethane system resin, poly urea, a melamine, a polycarbonate, a polyamide, a polyvinyl pyrrolidone, polyvinyl alcohol, a polyvinyl chloride, and a polyvinyl butyral, mixing, or a copolymer is used. Furthermore, since the repeat printing elimination resistance of the reversibility thermal recording

section is improved, weight section addition of the curing agent corresponding to a resin base material which carries out three-dimensions bridge formation, the cross linking agent, etc. can be carried out from 0.5% 10% to a resin base material. Furthermore, in order to raise resistance, a leuco compound and an ultraviolet ray absorbent with comparatively high compatibility can be added.

[0022] As an approach of manufacturing the information record card of this invention, the melting lamination method by the hot press machine can use. Although a melting lamination method carries out the laminating of the transparent protection sheet to both sides of the printed card base material, the classes of double-sided protection sheet may differ in that case. The melting laminating method is the approach of putting each raw material of a card with a somewhat large mirror plane plate, and unifying them with a heating melting press. The mirror plane plate used at this time is nickel. - The copper plate which carried out chrome plating, the stainless plate which ground the front face, the aluminum plate which ground the front face can be used. Moreover, printing to a card base material can print an alphabetic character or a pattern by well-known print processes, such as the conventional paper and the same approach as the case of plastics, i.e., offset printing, screen printing, and gravure.

[0023] After a melting lamination removes each raw material of the unified card from a mirror plane plate, and pierces it in the shape of a card type by single edge or punching by the metal mold of male-Metz.

[0024] Usually, it floats with an embosser and an alphabetic character is embossed, after becoming card type-like, on the alphabetic character, carry out tipping with a hot printing foil, and stain, or magnetic information is encoded to a magnetic stripe, or depending on the case, a photograph of his face, a bar code, etc. are imprinted, and a card is finished. And a protective layer can also be prepared in order to raise resistance, such as wear of an alphabetic character and a pattern printing layer. Furthermore, in order to prepare IC chip, after carrying out cutting to a concave, IC chip can also be embedded using adhesives.

[0025]

[Example] Hereafter, an example and the example of a comparison explain the gestalt of operation of this invention to a detail.

[0026] Sheet-ization was performed for <Example> 1 PETG (rice: Eastman chemical company : DN002) with the melting extrusion process, and the 0.1mm transparence amorphous PETG sheet 1 was obtained. Moreover, the 0.55mm white amorphous PETG sheet 2 was similarly obtained for PETG which mixed the white filler (titanium oxide) 10% by the weight ratio with the melting extrusion process. In this example 1, the transparence amorphous PETG sheets 1 are [ a protection sheet and the white amorphous PETG sheet 2 ] card base materials. And the card base material 3 which is the sheet which formed the alphabetic character and the pattern in the white amorphous PETG sheet 2 with offset printing and screen printing, put both sides with the transparence amorphous PETG sheet 1, and carried out temporary sealing of the four corners with an iron was obtained. On the other hand, on the plastic sheet which consists of a transparence PET film with a thickness of 25 micrometers, use a vacuum deposition method as a coloring layer, and aluminum layer of 0.05 micrometers of thickness is formed. The thermosensitive record coating which consists of an organic low-molecular one distributed by the upper layer in the resin base material was applied using the gravure method by the drying temperature of 130 degrees C, and 9 micrometers of coating



thickness, it made with the reversibility heat-sensitive recording layer, and the protective layer was further applied by the gravure method on it by the drying temperature of 100 degrees C, and 3 micrometers of coating thickness. Next, the gravure method was used, the adhesives coating was applied to the rear face of this obtained sheet by the drying temperature of 100 degrees C, and 2 micrometers of coating thickness, and the reversibility thermal recording tape 4 was obtained. It put between the card base material 3 which consists of the sheet with a thickness of 0.75mm furthermore obtained above which carried out temporary sealing with the stainless plate which made the front face smooth with the above-mentioned reversibility thermal recording tape 4, and after carrying out sticking-by-pressure thermal melting arrival according to the temperature of 100 degrees C, and the conditions of press \*\* 50 kg/cm<sup>2</sup> and carrying out cooling solidification by the heating melting pressing method, it pierced in the shape of a card type, and card-ized. Thereby, the reversibility thermal recording tape 4 serves as the reversibility thermal recording section of this example 1. Thus, the sectional view of the created information record card is shown in drawing 1 . The presentation of the thermosensitive record coating used for creating the reversibility thermal recording tape 4, a protective layer coating, and an adhesives coating is shown below.

[Thermosensitive record coating]

Stearin acid Seven weight sections Sebacic acid Two weight sections Hydrochloric-acid BI copolymer resin Six weight sections Tetrahydrofuran 30 weight sections Toluene Ten weight sections [a protective layer coating]

Acrylic resin 50 weight sections Teflon filler The 1.5 weight section Calcium carbonate The 1.5 weight section Toluene The 100 weight sections Methyl ethyl ketone The 100 weight sections [an adhesives coating]

Polyester system resin 40 weight sections Toluene 40 weight sections Methyl ethyl ketone 40 weight \*\*\*\*\* information record card was able to use the thermal head for the reversible thermal recording section, could print it by seal-of-approval energy 0.5 mJ/dot, and has eliminated printing data by seal-of-approval energy 0.3 mJ/dot using the thermal head further. Moreover, the count of repeat printing realized 100 times or more, and the high information record card of practicability was obtained.

[0027] In the <example 2> example 1, the thermosensitive record coating which distributed the sensible-heat color-enhancing constituent which has the reversibility by combination with a leuco compound and a \*\*\*\* coloring material to the resin base material was used instead of the thermosensitive record coating which consists of an organic low-molecular one distributed in the resin base material. The thermosensitive record coating which consists of the electron-donative coloration compound distributed by the resin base material at the upper layer of the plastic sheet which consists of a transperence PET film with a thickness of 38 micrometers, and an electronic receptiveness compound was formed using the gravure method by the drying temperature of 110 degrees C, and 10 micrometers of coating thickness, and was made into the reversibility heat-sensitive recording layer, and the protective layer was further applied by the gravure method on it by the drying temperature of 100 degrees C, and 2 micrometers of coating thickness. The gravure method was used, the adhesives coating was applied to the background of the obtained sheet the drying temperature of 100 degrees C, and 2 micrometers of coating thickness, and the reversibility thermal recording tape 5 was obtained. Furthermore, the information record card which is made

to carry out sticking-by-pressure thermal melting arrival by the heating melting pressing method the condition for [ temperature / of 110 degrees C / and press \*\* 100 kg/cm ] 2 or 10 minutes, is made to carry out cooling solidification, unifies, pierces in the shape of a card type after that to the card base material 3 with a thickness of 0.75mm created like the example 1, and has an information record medium with the reversibility thermal recording tape 5 in it was obtained. Thereby, the reversibility thermal recording tape 5 serves as the reversibility thermal recording section of this example 2. Thus, the sectional view of the created information record card is shown in drawing 2. The obtained information record card was able to use the thermal head for the reversible thermal recording section, and was able to print it by seal-of-approval energy 0.5 mJ/dot. Furthermore, it checked that printing data were eliminable by seal-of-approval energy 0.3 mJ/dot using the thermal head. Unlike an example 1, only the thermal recording coating of the coating used for the reversibility thermal recording sheet 5 is as follows [ presentation / the ].

[Thermal recording coating]

Crystal violet lactone Ten weight sections 2-(3 or 5G t-amyl-2-hydroxyphenyl) benzotriazol Ten weight sections The salt of a bisphenol acetic acid and a stearyl amine 40 weight sections Octadecanamide 40 weight sections Methacrylic resin 30-fold section Toluene 50 weight sections [0028] The information record card was created like the example 1 except having used the white alloy sheet 10 which performed melting extrusion at a rate (percentage PETG60% of resin, and polycarbonate 40%) instead of the white amorphous PETG sheet 2 as a <example 3> card base material.

[0029] As a <example 4> card base material, the information record card was created like the example 1 instead of the white amorphous PETG sheet 2 except having used the white A-PET sheet 11 (DENKA: A-PET sheet).

[0030] As a <example 5> card base material, the information record card was created like the example 1 instead of the white amorphous PETG sheet 2 except having used the white double-sided amorphous PET sheet 12 (U.S. E. I. du Pont de Nemours: CORE2). This white double-sided amorphous PET sheet 12 is one example of a double-sided amorphous sheet.

[0031] The information record card obtained in these examples 3-5 was able to use the thermal head for the reversibility thermal recording section, could print it by seal-of-approval energy 0.5 mJ/dot, and has eliminated printing data by seal-of-approval energy 0.3 mJ/dot using the thermal head further. Moreover, the count of repeat printing was realized 100 times or more, and the high information record card of practicability was obtained.

[0032] As a <example of comparison> card base material, the information record card was created like the example 1 instead of the white amorphous PETG sheet 2 except having used the white PVC sheet 20.

[0033] Although the practicability of the information record card of the example of a comparison is also high, since polyvinyl chloride resin is used when incineration processing is carried out at the time of abolition, chlorine hydrogen gas is generated and it has the problem that it does not excel in the abolition nature of damaging an incinerator.

[0034] On the other hand, with the information record card of examples 1-5, since polyvinyl chloride resin is not used, even if destroyed by fire after no more use, it can be called the card which was extremely excellent in abolition nature.

[0035]

[Effect of the Invention] As explained above, though it is the high information record card of practicability by using the resin of low crystallinity instead of polyvinyl chloride resin as a card base material, in case the information record card of this invention is incinerated after an activity, it is effective in that there is no problem of a hydrogen chloride or dioxin.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] The sectional view of the information record card of an example 1.

[Drawing 2] The sectional view of the information record card of an example 2.

[Drawing 3] The sectional view of the information record card of an example 3.

[Drawing 4] The sectional view of the information record card of an example 4.

[Drawing 5] The sectional view of the information record card of an example 5.

[Drawing 6] The sectional view of the information record card of the example of a comparison.

[Description of Notations]

1 -- Transparence amorphous PETG sheet

2 -- White amorphous PETG sheet

3 -- Card base material

4 -- Reversibility thermal recording tape (low-molecular / macromolecule type)

5 -- Reversibility thermal recording tape (leuco compound type)

10 -- White alloy sheet

11 -- A-PET sheet

12 -- White double-sided amorphous PET sheet

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